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(54) **Title**: BIOSYNTHETIC PATHWAYS, RECOMBINANT CELLS, AND METHODS

(57) **Abstract**: This disclosure describes, generally, recombinant cells modified to exhibit increased biosynthesis of pentanoic acid, methods of making such recombinant cells, and methods of inducing the cells to produce pentanoic acid. This disclosure also describes, generally, recombinant cells modified to exhibit increased biosynthesis of 2-methylbutyric acid, methods of making such recombinant cells, and methods of inducing the cells to produce 2-methylbutyric acid.